



Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

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2015 Solid Waste Data Update

March 2017

Introduction

In the *2010-2020 Solid Waste Master Plan (Master Plan)* the Executive Office of Energy and Environmental Affairs (EEA) and the Massachusetts Department of Environmental Protection (MassDEP) established a plan and vision for how Massachusetts will manage its solid waste for the 2011-2020 timeframe. To assist in implementing the *Master Plan*, MassDEP annually collects and analyzes solid waste management system data. The data are used to track progress in meeting waste reduction milestones and to evaluate solid waste management capacity needs. MassDEP has updated the solid waste data for calendar year 2015 and revised waste management capacity projections through 2021 based on the 2015 data.

MassDEP continues to implement a wide range of program initiatives to reduce waste and increase recycling and composting, while also ensuring that remaining waste is managed and disposed of safely. These initiatives are described in the *Master Plan*.

Goals and Methodology Summary

In the *Master Plan*, MassDEP established a vision to maximize the diversion of materials from disposal by 2020. The *Master Plan* establishes a specific goal to reduce annual disposal by 2 million tons, or 30 percent, from 6,550,000 tons in 2008 to 4,550,000 tons in 2020. This is a change from the previous Master Plan, which expressed our waste reduction goals in terms of a waste reduction rate. MassDEP now believes that disposal reduction is a simpler, more direct, and more effective metric for evaluating waste reduction and diversion progress, including source reduction, recycling, composting, and other forms of diversion. Therefore, the *2010-2020 Plan* has shifted from a waste reduction rate to a disposal reduction target as our primary goal for measuring progress. MassDEP will measure disposal reduction by comparing the total disposal in a future year against disposal in 2008 as a baseline year. Given this change, MassDEP is no longer reporting on recycling, composting, and other diversion data on an annual basis.

The methodology for the disposal reduction calculation is summarized in the table below.

Table 1 Methodology Summary		
Waste Reduction Rates		Equation
Disposal Tonnage	=	In State Disposal (Landfill & Municipal Waste Combustor) + Export for Disposal – Import for Disposal
Disposal Tonnage Reduction	=	2008 Disposal Tons – Current Year [2015] Disposal Tons
% Disposal Reduction	=	$\frac{2008 \text{ Disposal Tons} - \text{Current Year [2015] Disposal Tons}}{2008 \text{ Disposal Tons}}$

Progress in Meeting Disposal Reduction Milestone

Total disposal in 2015 was 5,510,000 tons, a decrease of 1,040,000 tons, or 16 percent, from 2008.

Solid Waste Management Overview

Table 2 highlights how solid waste disposal changed from 2014 to 2015, including the tonnage and percent change. Note that the originally published total disposal amount of 5,560,000 tons for 2014 has been adjusted to 5,520,000 tons, as approximately 40,000 tons of municipal waste combustor ash was incorrectly counted as disposal for 2014. From 2014 to 2015 total disposal decreased slightly by 0.2%. Of the total waste that required disposal, 4.6 million tons (84%) were disposed in-state, of which 1.4 million tons were land filled and 3.3 million tons were combusted. Massachusetts exported 1.4 million tons for disposal and imported 0.5 million tons, and thus was a net exporter of about 0.9 million tons (16%) of waste requiring disposal. See Table 4 for a more detailed picture of disposal import and export data by state.

Table 2 Solid Waste Tonnage and Percent Change Summary: 2014 - 2015

	2014	2015	Tons Change	% Change
Disposal (Incl. Net Exports)	5,520,000	5,510,000	(10,000)	-0.2%
In-State Disposal	4,830,000	4,630,000	(200,000)	-4.1%
Landfill	1,560,000	1,380,000	(180,000)	-11.5%
MSW	1,380,000	1,260,000	(120,000)	-8.7%
C&D	50,000	50,000	0	0.0%
Other	130,000	70,000	(60,000)	-46.2%
Combustion	3,270,000	3,250,000	(20,000)	-0.6%
MSW	3,260,000	3,250,000	(10,000)	-0.3%
Non-MSW	0	10,000	10,000	NA
Net Exports	690,000	880,000	190,000	27.5%
Exports	1,190,000	1,380,000	190,000	16.0%
MSW	460,000	620,000	160,000	34.8%
Non-MSW	730,000	760,000	30,000	4.1%
Imports	490,000	500,000	10,000	2.0%
MSW	460,000	460,000	0	0.0%
Non-MSW	40,000	50,000	10,000	25.0%

Note: % Change is calculated based on the rounded amounts in this table.

Percentages may not add exactly to 100% due to rounding.

Table 3 presents solid waste disposal data from 2010-2015, excluding 2013, when MassDEP did not publish statewide solid waste data.

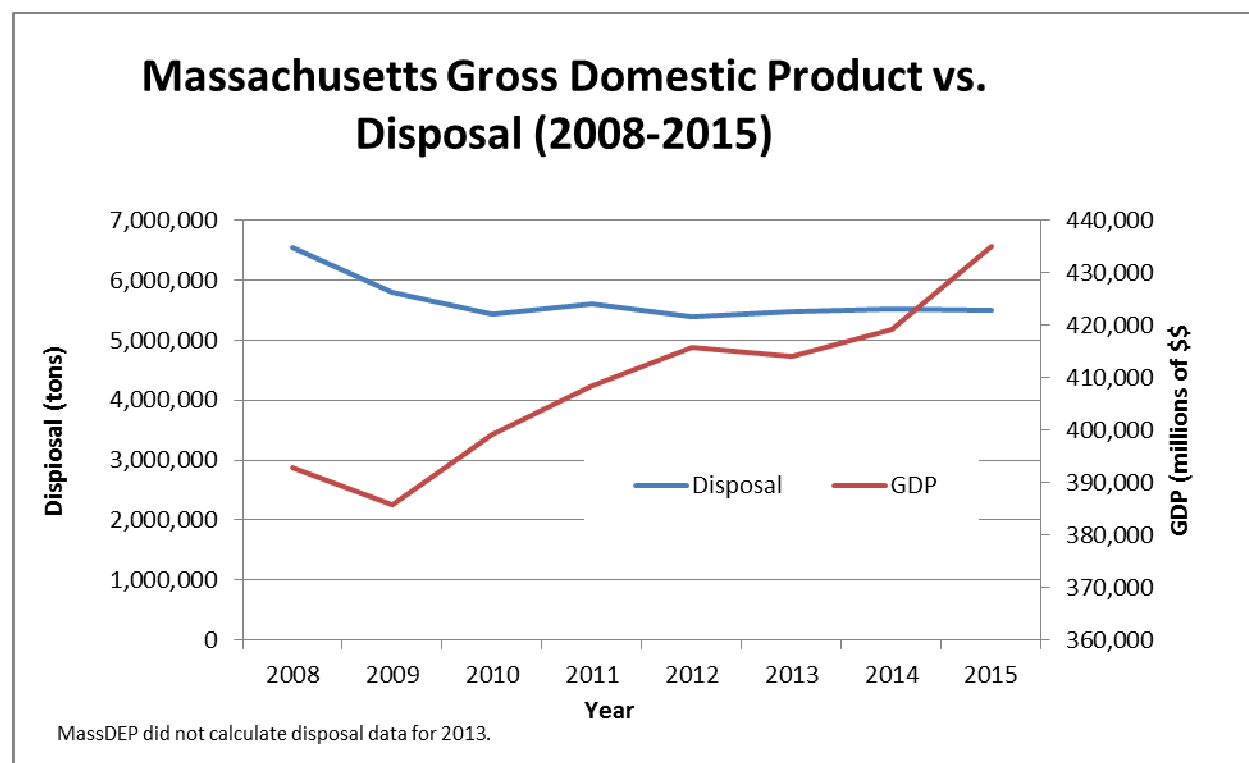
Table 3 Solid Waste Disposal 2008-2015 (all data in tons)							
		2008	2010	2011	2012	2014	2015
Disposal		6,550,000	5,430,000	5,610,000	5,400,000	5,520,000	5,510,000
	Landfill	1,740,000	1,560,000	1,650,000	1,700,000	1,560,000	1,380,000
	MSW	1,560,000	1,280,000	1,390,000	1,380,000	1,380,000	1,260,000
	C&D	130,000	120,000	70,000	100,000	50,000	50,000
	Other	50,000	170,000	190,000	220,000	130,000	70,000
	Combustion	3,230,000	3,180,000	3,260,000	3,210,000	3,270,000	3,250,000
	MSW	3,210,000	3,170,000	3,250,000	3,210,000	3,260,000	3,250,000
	Non-MSW	10,000	10,000	10,000	-	-	10,000
	Net Exports	1,580,000	690,000	700,000	490,000	690,000	880,000
	Exports	1,850,000	1,270,000	1,340,000	1,050,000	1,190,000	1,380,000
	MSW	840,000	690,000	630,000	510,000	460,000	620,000
	Non-MSW	1,010,000	580,000	710,000	540,000	730,000	760,000
	Imports	270,000	580,000	640,000	560,000	490,000	500,000
	MSW	240,000	440,000	390,000	420,000	460,000	460,000
	Non-MSW	30,000	140,000	240,000	150,000	40,000	50,000

Amounts may not add exactly due to rounding.

*Non-MSW combustion was less than 5,000 tons

2009 Data is not shown in this chart

Comparing Disposal Trends to State Economic Trends



The chart above gives a visual representation of Massachusetts waste disposal totals from 2008-2015 in the context of the state's Gross Domestic Product (GDP) over the same time frame.

While GDP has grown by 11% from 2008-2015, disposal dropped by 16 % during that same period. And, from 2014 to 2015, GDP went up by 4 % while disposal remained essentially flat. Note that the 2013 disposal data in this chart is estimated based on averaging 2012 and 2014 disposal.

	2008	2009	2010	2011	2012	2013	2014	2015	% change vs. 2008	% change vs. 2014
GDP (millions of dollars)	392,817	385,698	399,239	408,409	415,832	414,075	419,154	434,957	11%	4%
Disposal (tons)	6,550,000	5,800,000	5,430,000	5,610,000	5,400,000	5,480,000	5,520,000	5,510,000	-16%	0%

Disposal Import/Export Data for 2012-2015

Table 4 shows MSW and C&D data exported and imported for disposal by state. The export and import data for Massachusetts was collected from annual facility reports (AFR) submitted to MassDEP and from direct correspondence with other states. In some instances, the export data provided in the AFR differed from that reported from other states. In order to make the most inclusive estimate of export, the higher number from the two sources was used. For example, if an AFR reported that Massachusetts sent Connecticut 10,000 tons of MSW, and Connecticut reported receiving 29,000 tons of MSW from Massachusetts, 29,000 tons of export was used.

Table 4: Disposal Import/Export Data by State (tons): 2012-2015									
MSW Exported					C&D Exported				
State	2012	2014	2015		State	2012	2014	2015	
CT	6,544	1,327	14,339		CT	0	0	21,630	
ME	182,530	49,970	52,372		ME	7,449	9,389	11,863	
NH	148,889	191,192	332,804		NH	9,028	26,683	14,872	
NY	49,699	56,578	30,095		NY	41,779	31,710	68,274	
OH	120,549	142,515	181,064		OH	160,417	284,965	229,708	
RI	0	2,592	29		RI	27	27	827	
VT	0	13,094	9,206		TOTAL	218,700	352,774	347,174	
TOTAL	508,211	457,269	619,909						
MSW Imported					C&D Imported				
State	2012	2014	2015		State	2012	2014	2015	
CT	93,471	182,092	189,171		CT	20,045	129	4	
ME	0	2,479	2,182		ME	0	1	22	
NH	63,292	52,445	85,217		NH	6,255	6,066	4,801	
NY	22,854	24,326	20,357		RI	8,309	561	76	
RI	224,482	194,878	157,274		VT	5	24	0	
VT	12,326	1,751	1,202		TOTAL	34,614	6,781	4,903	
CANADA	12	0	0						
TOTAL	416,437	457,971	455,403						

Waste Management Capacity Projections

The disposal capacity projections in Table 5 reflect either actual permitted capacity, approved capacity contingent on receiving permits, or capacity based on facility contract commitments. However, in some cases, landfills may take in less than their permitted tonnage in a particular year. In these cases, capacity for a particular landfill may last beyond the date shown in these projections. In other cases, a landfill may choose to accept a different material than MSW, such as municipal waste combustion ash, so that a portion of this permitted capacity may not be

available for MSW. MassDEP attempts to take these factors into account by projecting only the % of potential landfill capacity that is actually used for MSW and C&D disposal. The combustion capacity is shown as level based on permit limits, although this actual amount managed will always be somewhat lower than these limits.

Table 6 projects waste management capacity through 2021. These projections are based in part on the disposal capacity projections shown in Table 5. These projections also assume that 85% of potential landfill disposal capacity is utilized (based on 2015 capacity utilization rates). The waste management capacity projections estimate two different scenarios:

- 1) Total disposal remains level from 2016 to 2021
- 2) Total disposal decreases 3.2% per year from 2016-2021, meeting the Solid Waste Master Plan goal of reducing disposal tonnage by 2 million tons from 2008 to 2020, down to 4,550,000 tons in 2020.

The projections show projected management capacity and net export through 2020. Under scenario 1, net export for disposal in 2020 is projected to be about 1.3 million tons. Under scenario 2, the projection shows net export of about 450,000 tons in 2020.

Table 5: Projected Disposal Capacity 2016-2021 (Tons Per Year)

Municipality	Permitted Capacity	End of current permitted capacity	Lifetime of LF	2016	2017	2018	2019	2020	2021
Active Landfills									
Bourne	30,000	2017	2024	30,000	30,000	30,000	30,000	30,000	30,000
Carver	101,125	2018	2020	101,125	101,125	101,125	101,125	101,125	0
Chicopee	365,000	2017	2018	365,000	365,000	91,250	0	0	0
Dartmouth	115,000	2018	2026	115,000	115,000	115,000	115,000	115,000	115,000
Middleborough	60,000	2020	2031	60,000	60,000	60,000	60,000	60,000	60,000
Nantucket	26,000	2020	2030	26,000	26,000	26,000	26,000	26,000	26,000
Southbridge	405,600	2017	2018	405,600	280,600	305,600	0	0	0
Taunton	120,120	2019	2020	120,120	120,120	120,120	120,120	120,120	0
Westminster	390,000	2017	2024	390,000	390,000	390,000	390,000	390,000	390,000
Municipal Waste Combustors									
Agawam	131,400			131,400	131,400	131,400	131,400	131,400	131,400
Haverhill	602,250			602,250	602,250	602,250	602,250	602,250	602,250
Millbury	529,575			529,575	529,575	529,575	529,575	529,575	529,575
North Andover	460,500			460,500	460,500	460,500	460,500	460,500	460,500
Pittsfield	84,000			84,000	84,000	84,000	84,000	84,000	84,000
Rochester	1,250,000			1,250,000	1,250,000	1,250,000	1,250,000	1,250,000	1,250,000
Saugus	460,500			460,500	460,500	460,500	460,500	460,500	460,500
	5,131,070	3,518,225							
TOTAL PERMITTED CAPACITY				5,131,070	5,006,070	4,337,320	3,724,345	3,604,225	3,578,225
TOTAL POTENTIAL CAPACITY				5,131,070	5,006,070	4,757,320	4,360,470	4,360,470	4,139,225
KEY:									
Permitted Capacity		Number without shading							
Potential Additional Capacity		Number with shading							
ESTIMATED TOTAL POTENTIAL AVAILABLE CAPACITY				4,894,859	4,788,166	4,575,847	4,237,118	4,237,118	4,048,276
85% of potential for LFs and 100 % of combustion capacity actual combustion amount will vary slightly year to year									
Total Potential Landfill Capacity				1,376,634	1,269,941	1,057,622	718,893	718,893	530,051

Actual 2015 disposal for MWCs is actual tonnage burned minus post combustion metal recovery.

MWC disposal capacity is not a fixed tonnage amount, but rather a function of the facility's air permit and may vary slightly.

2015 % Landfill Capacity used 85%

Table 6: Waste Management Capacity Projections: 2016-2021							
	2015	2016	2017	2018	2019	2020	2021
Total Disposal (baseline)	5,506,259	5,506,259	5,506,259	5,506,259	5,506,259	5,506,259	5,506,259
Total Disposal (reduced)	5,506,259	5,332,811	5,164,828	5,002,136	4,844,569	4,691,965	4,544,168
Combustion Capacity	3,253,021	3,518,225	3,518,225	3,518,225	3,518,225	3,518,225	3,518,225
Potential LF Capacity	1,376,634	1,376,634	1,269,941	1,057,622	718,893	718,893	530,051
In-state Disposal Capacity	4,629,655	4,894,859	4,788,166	4,575,847	4,237,118	4,237,118	4,048,276
Net Disposal Export (baseline disposal)	876,604	611,400	718,093	930,412	1,269,140	1,269,140	1,457,983
Net Disposal Export (reduced disposal)	876,604	437,952	376,662	426,289	607,450	454,847	495,892

Assumptions for Annual Percent Change:

Baseline Disposal Tonnage

2016-2021

0.0%

Decreased Disposal Tonnage

-3.2%

2015 data shows actual figures.

Combustion Capacity is projected to remain level from 2016 through 2021 based on permit limits.

Future landfill capacity is calculated to be 85% of total potential based on 2015 acceptance rate.